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ABSTRACT

A study investigated the effect of adult correction of grammatical errors during the language learning process. Four girls and four boys, ages 2 and 3, were interviewed individually, tape recorded and asked to repeat an adult sentence exactly. Overt mistakes were corrected either with an overt correction with expansion or with expansion only, without reference to error. Responses to corrections were categorized as entirely corrected, partially corrected, different from both the initial attempt and the correction, or refusal to correct. The results supported the expectations that (1) the children would use the correction information to repair their utterances, and (2) the ability to use adult corrections shows a developmental progression. It is concluded that, in general, children use the negative evidence in their language acquisition environments, allowing them to construct the correct grammar for their language. (MSE)

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The Role of Correction in Language Acquisition [1]

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The Role of Correction in Language Acquisition [1]

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1.0. Introduction

1.1. Negative Evidence. One of the most fundamental issues in learnability theory has been the characterization of input to the language learner as a component in the language acquisition model. The Gold model (1967) represents one of the earliest attempts to describe the nature of input, delineating two such levels. The first, designated 'text-presentation', comprises the presentation of well-formed sentences in the langauge, and as such, constitutes positive evidence. The second, labeled 'informant-presentation', consists of a sample string together with information on whether the utterance is a positive or a negative instance of the target language, that is, whether the utterance is plus or minus grammatical. This promising line of approach was temporarily quelled with the publication of Brown & Hanlon 1970 (hereafter B&H). In this study, B&H found that parental approval and disapproval of children's utterances was not contingent on syntactic correctness. The authors claimed that this indicated unequivocally that children are not exposed to 'informant-presentation' type input. For over a decade, the B&H conclusion remained relatively unchallenged, and served, moreover, as a basis for subsequent theorizing on the issue of learnability. In particular, it was taken by proponents of 'innateness' hypotheses as evidence for the relative insignificance of adult input to the language acquisition process.

Recently, however, B&H's position has come under scrutiny, most notably by Hirsh-Pasek, Treiman, & Schneiderman (1984). Among other things, these authors criticize B&H's narrow definition of negative evidence as overt correction. Hirsh-Pasek et al. increase the scope of the definition to include repetition with correction, otherwise known as 'expansion'. Incorporating this as well as other modifications to the experimental design, they replicated B&H's study and found that although caretakers did not provide <u>explicit</u> negative evidence in response to ill-formed utterances (i.e. overt correction), they were more likely to <u>repeat</u> ill-formed than well-formed utterances. Furthermore, 'virtually ALL repetitions of the ill-formed sentences included a correction of the child's error' (86). They conclude that parental repetition of the child's utterances 'could help the child to narrow down his hypotheses about candidate grammars as he begins the job of inducing the grammar of his native language... It is therefore worth studying whether the child attends to and benefits from this cue' (87).

The question of whether children can accept and utilize negative evidence when adults do offer it has also tended to receive a negative answer in the literature. Anecdotes such as the infamous 'Nobody don't like me' exchange (McNeill 1966) have been used to argue that children largely ignore corrections. However, it is often overlooked that the child in this exchange <u>did</u> modify his sentence to 'Nobody don't <u>likes</u> me' (after being corrected eight times), and McNeill notes that '[t]he fact that a change ultimately was made...illustrates that children can profit from adult models' (69). Similarly, McCawley

(1979:243) points out that '...all that [this anecdote] shows is that at that point in his development the child could not accurately perceive that particular correction. It says nothing about whether the same correction would have been effective at another time or other corrections would have been effective at that time.' It is clear that the issue of children's utilization of negative evidence remains open.

The current study, then, was designed to further explore the question of whether or not children can make use of negative evidence, particularly corrected repetitions of their own incorrect utterances. Further, it explores the hypothesis presented by Clark (1982:189) (and also suggested by McCawley above) that 'what gets repaired at different ages appears to be linked to what the child has already mastered and what he's on the verge of mastering.'

1.2. **The Present Study.** In order to test the questions raised above, a pilot study was conducted in which subjects were asked to repeat sentences after the experimenter, and were corrected if they made a structural mistake in the repetition; they were then asked to repeat the utterance again, and their responses were noted. The sentences the children were asked to repeat were designed to reflect grammatical structures from the developmental progression suggested in various papers in Fletcher and Garman (1979). The categories represented in the corpus included modals, questions, conjunctions, verb aspect constructions, embedded constructions, causatives, and passives. Table 1 depicts graphically some predictions that have been made regarding the order of acquisition of these structures, and indicates sources for these predictions. Within grammatical categories, specific structures predicted to occur early are located at the left side of the figure, and later developments are shown at the right; further, the vertical alignment of categories is designed to give some notion (albeit imprecise) of the relative lateness of acquisition of the different grammatical categories compared to each other.

The two questions asked by this experiment are: 1) If children repeat an adult utterance incorrectly and then hear it corrected, will they utilize this information to correct their incorrect utterance a significant proportion of the time, or will they ignore the adult correction? 2) Is there some developmental progression involved; that is, do children make fewer initial errors and, more importantly, utilize corrections more readily for structures predicted to be learned earlier? Answers to these questions will provide significant data on the issues of learnability raised above.

2.0. **The Experiment.**

2.1. **Experimental Design.**

2.1.1. **Subjects and Materials.** Subjects were four girls and four boys aged 2;7 to 3;8 (mean 3;2). All attended the same pre-school, which selectes its students so as to maintain a heterogeneous sample in terms of age and sex, as well as ethnic and socio-economic background. All Ss were acquiring American English as a first language.

The experimental materials consisted of five pictures of cartoon characters and of seven statements or questions about each. The first picture depicted the characters Sylvester and Tweety picking corn, the second a clown and a pig riding a bicycle, the third children and their pets, the fourth various holiday scenes, and the fifth Tweety and Sylvester fishing. The list of 35 sentences included exemplars of

Table 1:
Types of grammatical cagetories and structures used in experiment, with indication of predicted developmental progression of acquisition.

MODALS (Fletcher 1979)

early		late
present tense		past tense

QUESTIONS (Garman 1979)

early		late
WH-questions	yes/no questions	

CONJUNCTIONS (Bowerman 1979)

early		late
and/and then/but/or		either...or/both...and/before/after

VERB ASPECTS (Fletcher 1979)

early		late
progressive	perfect	

EMBEDDING (Bowerman 1979)

early		late
	on object position	on subject position

CAUSATIVES (Karmiloff-Smith 1979)

early		late
	causatives	

PASSIVES (Karmiloff-Smith 1979)

early		late
	irreversible	reversible

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all of the various structures represented in Table 1. The sentences ranged from 3-6 words in length, with a mean length of 4.4 Ordering of the various structures was randomized over the 35 strings. To preserve this random order of presentation, the ordering of the sentences within each set of seven was held constant.

2.1.2. Procedure. The study took place on school grounds in a small building used specifically for on-site research. Ss were interviewed individually, and tape recordings were made of all sessions. Each interview consisted of E's explaining to the child that they were going to look at some pictures together and play a game. In the game, E would say a sentences about the picture, and the child was to try to repeat it exactly the way E said it. Ss were allowed to choose the

order of the pictures, in order to sustain their interest and encourage cooperation. [2]

If Ss made a structural mistake in repeating an utterance, they were corrected by E. Correction was of two types: the first was overt correction with expansion, for example, 'That's almost right. Can you try it again?' and E would then repeat the correct utterance. The second type was expansion alone, without any overt statement about the correctness of the child's original utterance. Overt correction was used only 20% of the time; the remainder of E's prompts were expansions only. As a control, E would occasionally ask a child to repeat a correct utterance; these prompts consisted of repetition only.

2.2. Results. Tapes of the interviews were transcribed, and Ss' responses were scored according to the following system. A response was scored as I, meaning 'initially correct', if the child's repetition was the same as E's model on the first attempt. If the child made an error on the first attempt, the following classifications were used for responses to E's corrections: 'E' = entirely corrected, if the child made a complete correction; 'P' = partially corrected, if the child made a partial correction, specifically correcting the originally ungrammatical section of his or her utterance; 'D' = different, if different from both the initial attempt and E's model; 'N' = not corrected, if subsequent attempts were the same as the initial attempt; and 'R' = refusal, if the S refused to attempt subsequent repetitions. These classifications are self-explanatory, except perhaps for 'P', some examples of which are given here.

E: Cats drink milk or water.
S: Cats drink milk and water.
E: Can you say, 'Cats drink milk or water'?
S: Milk or water.
E: Can you say 'Cats drink milk or water'?
S: They drink milk or water.

E: Yesterday Sylvester could catch fish.
S: Yesterday Sylvester can catch fish.
E: Yesterday Sylvester could catch fish.
S: Sylvester could catch fish.

Table 2 presents overall responses. Out of a total of 277 attempts, the Ss responded correctly 157 times (57%); of the 117 instances which were corrected, children responded with a complete correction 53 times (45% of corrected) and with a partial correction 21 times (18%); the utterance was not corrected (including 'D,N,R') 37% of the time. Grouping together the cases in which children made a complete or partial correction ('E,P' = 63%) vs. cases with no correction ('D,N,R' = 37%), a t-test reveals that corrections were made significantly more often than not: $t(7)=6.35$, one-tailed $p<.001$.

Control response types, that is, responses to requests for repetition of a correct utterance, were analyzed separately. Out of a total of 18 such responses, 78% were correct repetitions (that is, the same as the initial correct attempt), 5% were ill-formed repetitions, and 17% were refusals. Thus the great majority of Ss' responses were unchanged utterances; note that Ss responded to adult prompts with

Table 2: Overall Results.

	N	% of overall		N	% of corrected
Initially Correct:	157	57	Eventually Corrected:	53	45
Initially Refused:	3	1	Partially Corrected :	21	18
Initially Incorrect:	117	42	Different :	15	13
			Not Corrected :	14	12
Total N = 277			Refused to Attempt :	14	12

Table 3:
Number and percentage of responses to sentences organized by grammatical category and structures predicted to be learned early vs. late. I=initially correct, E=entirely corrected, P=partially corrected, D=different but not corrected, N=no change, R=refused second attempt.

Grammatical Category	Number Attempted	I #	I %	E,P #	E,P %	D,N,R #	D,N,R %
EARLY							
Modals	57	37	65%	16	28%	4	7%
Questions	35	28	80%	5	14%	2	6%
Conjunctions	39	23	59%	10	26%	6	15%
Aspects	15	12	80%	2	13%	1	7%
Embedding	13	8	62%	3	23%	2	15%
Passives	8	4	50%	3	37.5%	1	12.5%
	167	112	67%	39	23%	16	10%
LATE							
Modals	23	13	57%	3	13%	7	30%
Questions	37	22	59%	10	27%	5	14%
Conjunctions	28	8	28.5%	12	43%	8	28.5%
Aspects	16	8	50%	6	37.5%	2	12.5%
Embedding	15	3	20%	5	33%	7	47%
Causatives	8	5	62.5%	2	25%	1	12.5%
Passives	8	2	25%	4	50%	2	25%
	135	61	45%	42	31%	32	24%

Table 4:
Summary of number and percent of types of corrections for Early vs. Late structures.

	EARLY					LATE				
# Requests for Repair	E,P #	E,P %	DNR #	DNR %		#Requests for Repair	E,P #	E,P %	DNR #	DNR %
55	39	71%	16	29%		74	42	57%	32	43%

unchanged utterances in only 12% of the cases in which the initial utterance had in fact been incorrect.

Responses organized according to grammatical category and structure types predicted to be learned early vs. late are presented in Table 3. (The numbers in this table reflect the fact that some sentences were exemplars of more than one category; for example, *'Can the cat bark?'* is counted in both the 'Yes-No Question' and the 'Modals' categories.) It can be seen from this table that struc-tures predicted to be learned early were in fact produced correctly on the first try by these Ss more often than were the structures predict-ed to be learned later (67% vs. 45%). Table 4 shows that of the 55 instances in which Ss were prompted to make a correction of the 'early' structures, they made a complete or partial correction (E,P) in 71% of the cases. However, when they were prompted to correct one of the 'late' structures, which occurred 74 times, they responded with a correction in only 57% of the cases. Due to the small and irregular numbers in individual cells, statistics were not performed on these data; however, it is clear that the hypothesis that Ss will attempt more corrections on 'easier', i.e. earlier learned constructions, is supported by these results. There are no clear trends across grammatical categories predicted to be learned earlier vs. later (i.e. those at the top vs. bottom of the table).

3.0. Discussion and Conclusions.

The first issue raised above was whether children will interpret a corrected repetition of their incorrect utterance as negative evidence, and whether they will utilize this information to repair their utterance. The data presented here support a positive answer. However, note that for the most part children do <u>not</u> interpret repetition of an initially correct utterance as a request for repair. This indicates that a rather complex mechanism is at work, in that children to not merely change any utterance when an adult prompts a repetition. A possible explanation is that children recognize adult repetitions as a cue that the child's utterance <u>may</u> have been ill-formed; children match their initial utterance against the adult's repetition, and if a mismatch is found, they repair the utterance if they are able to at that point in their development. Clark (1982:177) similarly argues that children's repairs 'provide evidence for an ability to detect mismatches between some representation of what an utterance should have sounded like and the child's own version. Otherwise children would be unable to repair on demand, and repair appropriately, when asked to.'

The second question posed here is whether children's ability to utilize adult corrections reflects some developmental progression. Again these results support a positive answer, in that those struc-tures which Ss tended to be able to produce correctly on their first attempt (the 'early' structures) were also those which they were more able to correct if produced incorrectly the first time. The 'late' structures posed more problems for both initial attempts and correc-tions. Specific statements about individual grammatical categories would be somewhat equivocal at this point, but the trend can be seen within every category tested. Clearly more precise data depends on further studies with larger numbers of children of a broader age range, focussing on specific grammatical structures.

What does this research say about the broader issues of negative evidence and innateness? Innateness theories of language acquisition take the stance that adults rarely give children overt feedback on the syntactic correctness of their utterances (using B&H for support), and that even if they do, children cannot utilize this information to make repairs (as the McNeill anecdote is taken to show). However, there is a growing body of evidence that adults do respond differentially to children's syntactically correct vs. incorrect utterances. Hirsh-Pasek et al. (1984) shows that this response can take the form of corrected repetitions of incorrect utterances, and the present research shows that children utilize these repetitions as a cue to engage a sort of 'monitor-checker-repair' mechanism (as described in Clark 1982:173). It is evident that requests for repairs can take forms other than repetitions: Gallagher (1977, 1981) has shown that adults often demonstrate misunderstanding of a child's utterance by asking 'What?' or (e.g.) 'You can what?', and that children take these sorts of responses as an indication that the repair mechanism needs to be switched on. Children's responses to such 'contingent querys' and repetitions show that *they are being used as negative evidence*, i.e. as evidence of the (potential) ungrammaticality of the child's utterance. Further, since this type of adult response actually facilitates the communication situation (i.e. the conversation cannot continue if the adult does not understand what the child is trying to say), it is not surprising to find these adult responses to be much more prevalant than overt corrections, which effectively halt the communication process (the child in McNeill's example still believes that nobody likes him by the end of the exchange). The extent to which children actually utilize this negative evidence to make long-term changes in their grammars is a question only detailed longitudinal studies can answer. Nevertheless, there is now ample evidence to show that in general, children are presented with several types of negative evidence in their normal language acquisition environments (what child is *never* misunderstood by adults?), and that they can utilize this negative evidence as such. If the necessity for positing a large language-specific innate component for language acquisition hinges on the argument that the language acquisition environment does not provide all the necessary or sufficient information for constructing a grammar, then studies such as the present one begin to weaken this necessity. Instead, they would support a theory such as that outlined in Bruner 1983, that children's basic non-language-specific cognitive abilities, combined with their inherent desire to communicate, would allow them to utilize evidence such as that discussed here to construct the correct grammar for their language.

FOOTNOTES

[1] An earlier version of this paper was prepared and presented by the first author at the 18th Annual SCLRF. The modifications evident in the current version represent a collaboration by both authors. This research was funded in part by a U.C. Davis Faculty Research Grant to Jaeger, and was carried out at the U.C. Davis Early Childhood Laboratory Pre-School. We wish to thank Eve Clark, Kim Plunkett, and Janet Shibamoto for comments on this study, and Nancee Baily and the children at E.C.L. for their cooperation.

[2] The order in which children chose the pictures turned out not to be random, in that pictures 1, 2, and 5 were selected earlier than pictures 3 and 4 a significant number of times. Analysis of overall patterns in the children's responses showed that this factor had no effect on the results, in that children did not tend to perform any better or worse on pictures chosen earlier vs. later.

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